REMARKS

Applicants request favorable reconsideration of this application in view of the foregoing amendments and the following remarks. Of claims 1-24 which were originally pending in the application, claims 3, 12, 16-18, and 20-24 were previously withdrawn from consideration. Thus, each of claims 1, 2, 4-11, 13-15, and 19 was pending. The Examiner, however, further withdrew from consideration claims 14, 15, and 19. To expedite prosecution, Applicants do not dispute this action. However, in light of the Examiner's failure to address the limitations of claim 13 when rejecting the claim under 35 U.S.C. § 103(a) (as later discussed in detail), should the Examiner determine that the application is still not in condition for allowance, Applicants would expect a **Non-Final** office action to be issued.

Each of claims 1, 2, 4-11, 13-15, and 19 has been amended, primarily for readability, without narrowing its scope. New claim 25 has been added to define further the invention recited in claim 1. No new matter has been added. Therefore, of claims 1-25 which remain outstanding, claims 1, 2, 4-11, 13, and 25 are pending for consideration on the merits.

1. Rejections Under 35 U.S.C. § 112, ¶ 2

The Examiner rejected claims 1, 2, and 4-11 under 35 U.S.C. § 112, ¶ 2 "as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention." In light of the amendments made herein to claims 1, 2, and 4-11, Applicants assert that this rejection is now moot and should be withdrawn. No narrowing in claim scope has occurred with the amendments to claims 1, 2, and 4-11.

2. Rejections Under 35 U.S.C. § 103(a)

The Examiner rejected claims 1, 2, 4-11, and 13 under 35 U.S.C. § 103(a) as being obvious when considering U.S. Patent No. 6,357,518 ("Sugimoto") in view of U.S. Patent No. 6,354,368 ("Nishishita"). For the reasons hereafter set forth, Applicants respectfully traverse this rejection.

Claim 1 recites:

> . . . wherein said flat connection part is formed with a third louver in the vicinity of an innermost one of said first louvers, wherein said third louver is constructed to obstruct a heat transfer in the fin.

Applicants assert that neither Sugimoto nor Nishishita teaches or suggests each limitation of the recited connection part.

The Examiner admits Sugimoto fails to teach or suggest the flat connection part having a third louver limitation and relies on Nishishita to provide the absent teaching. However, in actuality, Nishishita fails to cure this deficiency. Nishishita teaches the formation of a heat transfer prevention portion 50 having a folded portion 51/52 therein. *See* Nishishita at col. 4, line 38 – col. 5, line 11. However, the folded portion 51/52 is not "constructed to obstruct a heat transfer in the fin," as recited in claim 1. Rather, the folded portion is constructed such that "the degree to which the dynamic strength of the fin 4 itself becomes reduced in the vicinity of the heat transfer prevention portion 50 can be minimized, and ultimately, the dynamic strength of the fin itself can be preserved." *See id.* at col. 4, lines 56-60. Clearly, the folded portion 51/52 in Nishishita is provided to reinforce the strength of the fin 4 rather than to serve as a third louver which obstructs heat transfer.

Further, the folded portions 51/52 are not louvers. In the present invention, the third "louver" is analogous in construction as the first and second "louvers." Such a third "louver" is plainly quite different from the heat transfer prevention portion 50, as shown in Nishishita. Accordingly, for all of the aforementioned reasons, Nishishita fails to teach or suggest a flat connection part having a third louver as recited in claim 1 and, therefore, it fails to cure the deficiencies of Sugimoto.

With respect to claim independent 13, Applicants note that the Examiner failed to state how the combination of the Sugimoto and Nishishita taught each limitation of the claim. Presumably, this failure is the direct result of the fact that the combination, in fact, does not teach each limitation of claim 13. In particular, claim 13 recites a "flat connection part arranged between the corrugated first and second parts [which is] formed with a plurality of heat radiation portions." Clearly, the slits S in Sugimoto can not serves as radiators of heat. Further, Nishishita fails to cure the deficiencies of Sugimoto because the *heat transfer prevention* portion 50, by definition, can not qualify as a heat *radiation* portion.

For all of the aforementioned reasons, the combination of Sugimoto and Nishishita fails to teach or suggest each of the limitations of claims 1 and 13 and, therefore, the combination can not be used to reject the claims under 35 U.S.C. § 103(a). In addition, as each of claims 2 and 4-11 recites each of the limitations of claim 1 through their dependency thereon, these dependent claims are also allowable over the combination of Sugimoto and Nishishita, without regard to the other patentable limitations recited therein. Therefore, a withdrawal of the rejection of claims 1, 2, 4-11, and 13 under § 103(a) is both warranted and earnestly solicited.

3. New Claim 25

New claim 25, which has been added to depend from claim 1, recites "wherein said flat connection part is free from cut-out portions." Support for this new claim can be found at page 2, lines 5-12, page 3, lines 5-11, and at Figure 13. This new limitation further distinguishes claim 1 from the combination of Sugimoto and Nishshita, both of which teach cut-out parts. Specifically, Sugomoto teaches slits S and Nishishita teaches cut-out portion 50 with a folded portion 51/52, both of which teach away from the recitation in new claim 25.

CONCLUSION

For the reasons stated above, the claims currently pending are in condition for allowance. A Notice of Allowance at an early date is respectfully requested. The Examiner is invited to contact the undersigned if such communication would expedite the prosecution of the application.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

In accordance with 37 C.F.R. § 1.121(b)(1), please amend the specification by substituting the following paragraphs for the corresponding paragraphs originally filed, as indicated below.

Please replace paragraph starting on page 2, line 4 and line 12 with the following:

Since the connection part 3a is formed [therein] with the cut-out parts 3d and the louvers 3e in this core structure, and the heat transfer through the corrugated fins 3 is obstructed by the cut-out parts 3d and the louvers 3e in the core part of this integral heat-exchanger, [and accordingly,] it is possible to restrain [such] thermal interference such that heat is transferred, for example, from the higher temperature second heat-exchanger tubes 2 toward the lower temperature first heat-exchanger tubes 1 through the intermediary of the corrugated fins 3.

Please replaces the paragraphs starting on page 2, line 30 and ending on page 3, line 15 with the following:

In the core structure of this integral heat-exchanger, since the louvers 6d are formed in the connection part 6a, heat transfer through the corrugated fin 6 is obstructed[, and accordingly]. Accordingly, it is possible to restrain thermal interference such that heat is transferred, for example, from the higher second temperature heat-exchanger tubes 5 toward the lower temperature [second] first heat-exchanger tubes 4 through the corrugated fins 6.

However, in the core structures of the above-mentioned conventional integral heat-exchangers, due to provision of the cut-out parts 3d and louvers 6d in the connection parts 3a, 6a, heat entering into the connection part 3a, 6a is obstructed[, and accordingly, there has been raised such]. Accordingly, a drawback exists in that heat radiation from the connection part 3a, 6a cannot be effectively made.

Further if the louvers 3e, 6d are formed excessively in the connection part 3a, 6a, the air resistance becomes increased and thus makes the air flow poor, resulting in lowered [that the] heat-exchanged performance [is lowered].

Please replace the paragraph starting on page 5, line 5 and ending on line 6 with the following:

Fig. 1 is a perspective view of an integral heat-exchanger having a core structure according to the present invention;

Please replace the paragraph starting on page 8, line 9 and ending on line 15 with the following:

The corrugated fin 15 also has a second joint zone 15b where the joint portions 13b of the second heat-exchanger tubes 13 are located. In this second joint zone 15b, a plurality of function enhancing louvers 15h are successively formed in a portion of the second joint zone 15b which [excepts such] does not include a zone that [is extended] extends by a predetermined distance X from the inner end 15f of the second joint zone 15b.

Please replace the paragraphs starting on page 9, line 2 and ending on line 13 with the following:

As is seen from the lower illustration of Fig. 2, the corrugated fin 15 is formed with louvers 15c, 15e, [15d] 15h which are symmetric on opposite sides of the center line C of the corrugated fin 15.

In the core structure of the integral heat-exchanger, the function enhancing louvers 15h are successively formed in the second joint zone 15b, except the part which extends in the predetermined distance X from the inner end 15f of the second joint zone 15b[, and accordingly]. Accordingly, heat from the second heat-exchanger tubes 13 is surely [transfered] transferred from the zone which extends in the predetermined distance X from the inner end 15f of the second joint zone 15b, to the flat connection part 15j.

Please replace the paragraph starting on page 9, line 17 and ending on line 25 with the following:

Furthermore, since the heat transfer preventing louver 15e is formed, subsequent to the function enhancing louvers 15c, in the zone inside of the inner end 15d of the flat connection part 15j, heat is restrained from being transferred from the flat connection part 15j

toward the first heat-exchanger tubes 11, by means of the heat transfer preventing louver 15e[, and accordingly]. Accordingly, thermal interference between the first heat-exchanger tubes 11 and the second heat-exchanger tubes 13 can be suppressed or at least minimized.

Please replace the paragraphs starting on page 10, line 21 and ending on line 25 with the following:

[While, if] If the length of the flat heat transfer part 15n exceeds 12 mm, substantially no heat transfer is effected in the part beyond 12 mm, that is, it does not contribute to heat radiation.

Thus, it is [preferably be] preferable to set [to a] the value of the length L2 of the flat heating transfer part 15n at less than 8 mm.

IN THE CLAIMS:

In accordance with 37 C.F.R. § 1.121(c)(1), please substitute for original claims 1, 2, 4-11, 13-15, and 19 the following rewritten versions of the same claims, as amended.

1. (Amended) A core structure of an integral heat-exchanger, comprising:

at least two first heat exchanger tubes which extend in parallel with each other;

at least two second heat exchanger tubes which extend in parallel with each other,

wherein the two second heat exchanger tubes [being] are juxtaposed with the first heat exchanger tubes; and

a corrugated fin including a corrugated first part interposed between said first heat exchanger tubes, a corrugated second part interposed between said second heat exchanger tubes, and a flat connection part arranged between the corrugated first and second parts,

wherein said corrugated first part of the fin [being] is formed with a plurality of first louvers each extending substantially between the two first heat exchanger tubes[;],

wherein said corrugated second part of the fin [being] is formed with a plurality of second louvers each extending substantially between the two second heat exchanger tubes, [the] wherein an innermost one of said second louvers [being] is positioned away from [the] an innermost end of said corrugated second part of the fin by a given length[;], and

wherein said flat connection part [being] is formed with a third louver in the vicinity of [the] an innermost one of said first louvers, wherein said third louver [being] is constructed to obstruct a heat transfer in the fin.

2. (Amended) A core structure as claimed in Claim 1, [in which] wherein said first louvers and second louvers are constructed to improve a heat radiation of the fin, and wherein [in which] each of said first, second, and third louvers extends in a direction perpendicular to the direction in which air flows.

4. (Amended) A core structure as claimed in Claim 1, [in which] wherein said second heat exchanger tubes are located behind said first heat exchanger tubes with respect to a direction in which air flows.

5. (Amended) A core structure as claimed in Claim 4, [in which] wherein said first heat exchanger tubes and said corrugated first part of the fin are [arranged to treat with] adapted to act at a lower temperature, and [in which] wherein said second heat exchanger tubes and said corrugated second part of the fin are [arranged to treat with] adapted to act at a higher temperature.

6. (Amended) A core structure as claimed in Claim 5, [in which] said first heat exchanger tubes are arranged to [flow therethrough] have a refrigerant of an automotive air conditioner flow therethrough, and wherein [and] said second heat exchanger tubes are arranged to [flow therethrough] have an engine cooling water flow therethrough.

7. (Amended) A core structure as claimed in Claim 1, [in which] wherein the distance between said third louver and the innermost end of said corrugated second part of the fin is less that 12 mm, and [in which] wherein said given length is greater than a pitch at which said second louvers are arranged.

8. (Amended) A core structure as claimed in Claim 1, [in which] wherein the length between the third louver and the innermost one of said second louvers is substantially equal to the length of said flat connection part of said fin.

9. (Amended) A core structure as claimed in Claim 1, [in which] wherein a front cluster including said first louvers and said third louver and a rear cluster including said second louvers are arranged symmetrically with respect to said flat connection part of said fin.

10. (Amended) A core structure as claimed in Claim 9, [in which] wherein a center line of said corrugated fin is located in a center portion of said flat connection part.

11. (Amended) A core structure as claimed in Claim 1, [in which] wherein the width of the first heat exchanger tubes is different from that of the second heat exchanger tubes.

13. (Amended) A core structure of an integral heat-exchanger, comprising:

at least two first heat exchanger tubes which extend in parallel with each other;

at least two second heat exchanger tubes which extend in parallel with each other,

wherein said second heat exchanger tubes [being] are juxtaposed with said first heat exchanger tubes; and

a corrugated fin including a corrugated first part interposed between said first heat exchanger tubes, a corrugated second part interposed between said second heat exchanger tubes, and a flat connection part arranged between the corrugated first and second parts,

wherein said corrugated first part of the fin [being] is formed with a plurality of first louvers each extending substantially between [the two] said first heat exchanger tubes[;],

wherein said corrugated second part of the fin [being] is formed with a plurality of second louvers each extending substantially between [the two] said second heat exchanger tubes[;], and

wherein said flat connection part [being] is formed with a plurality of heat radiation portions, wherein each radiation portion [being] is constructed not to [largely] deteriorate the heat transfer in the fin substantially.

14. (Amended) A core structure as claimed in Claim 13, [in which] wherein said heat radiation portions are auxiliary louvers, and wherein each auxiliary louver [being] is smaller in size than each of the first and second louvers.

15. (Amended) A core structure as claimed in Claim 14, [in which] wherein each of said auxiliary louvers extends in a direction perpendicular to the direction in which air flows.

19. (Amended) A core structure as claimed in Claim 1, [in which] wherein the number of [the] louvers provided in a front cluster [including] which includes said first louvers and said third louver is different [from that of the] than the number of louvers provided in a rear cluster [including] which includes said second louvers, wherein [and in which] said flat connecting part of the corrugated fin is formed with a plurality of heat radiation portions which are located closer to the corrugated second part than the corrugated first part, and wherein each radiation portion [being] is constructed not to [largely] deteriorate the heat transfer in the fin substantially.